217-782-5504

August 13, 2004 DRAFT

Arthur Bourlard, EH&S Coordinator
Lockformer
711 Ogden Avenue
Lisle, Illinois 60532-1399

Refer to: 0430555004 – DuPage County
Lisle/Lockformer
Superfund/Technical Reports

Dear Mr. Bourlard: The Illinois Environmental Protection Agency (Illinois EPA) has reviewed Clayton's *Additional Area 3 Investigation, received June 25, 2004.*

GENERAL COMMENTS

1. The soil and groundwater delineation in Area 3 to the east and west of Lockformer facility has been successfully accomplished.

2. Manhole E, the source of contamination from the north-south sanitary sewer south of the Lockformer facility, is sufficiently delineated to propose and design a remedial system. Additional samples may need to be collected to determine the appropriate radius of influence for an SVE system, if this is the selected remedial technology.

3. Soil and groundwater analytical data that were collected after the *Supplemental VOC Investigation Report for Area 3, November 27, 2002* report was issued should be tabulated, compared with appropriate Tier 1 standards and included in this report. Laboratory data sheets should be provided as an attachment. Similarly, groundwater analytical data collected from bedrock wells RW1 through RW12 should be included in this report since there was no separate submittal of these data.

4. The IEPA does not agree with the conclusion that 42-inch sewer owned by the Downers Grove Sanitary Sewer District (DGSD) contributed TCE contamination to residential wells south of the Lockformer facility. IEPA's opinion is based on the following observations: 1) no TCE was detected in any of the soil samples collected underneath the sewer, and 2) TCE groundwater concentrations underneath the sewer are lower than groundwater concentrations at the southern boundary of the Lockformer property. The IEPA is not disputing findings that several compounds detected in the soil underneath the DGSD sewer were not found at the

Lockformer facility or that downward vertical gradients exist in the vicinity of DGSD sewer. The report should be revised to eliminate the conclusion that the DGSD sewer contributed TCE contamination to the residential wells. If necessary, the IEPA is willing to discuss the implications of the DGSD sewer leak on the performance of groundwater remediation system at the southern boundary of Area 3.

SPECIFIC COMMENTS

1. It would be beneficial to show on Figures 2-1 to 2-4 the depths where grab groundwater samples were collected.

2. Page 2-1, Figure 2-1, Section G-G'. Please indicate the approximate location of the groundwater table.

3. Page 2-1, Figure 2-1, Section B-B'. Please verify labels pointing to wells MW-1119M and MW-1119S.

4. Page 2-2, Figure 2-2, Section I-I'. Monitoring well MW-2129S is not shown on the reference map. Soil boring CSB2128 is not shown on cross-section I-I'. Please verify.

5. Page 2-3, Figure 2-3, Section C-C'. Soil boring CSB2112 is not shown on the reference map. Please verify.

6. Page 2-4, 1st paragraph. Sampling at the Ogden Corporate Center was performed to determine whether groundwater exiting the western boundary of Area 3 exceeds Tier 1 standards. Based on the groundwater flow direction, it appears that TCE detections in CSB2140, CSB2141, and CSB2142 are due to contamination present at the Lockformer property and not due to release from the sanitary sewer. Please incorporate this conclusion in the report.

7. Page 2-4, Soil sampling results are not shown for all of the data collected (i.e. CSB2142, CSB2413-CSB2415). Per general comment requirement, all the data should be included in this report.

8. Page 3-3, 2nd paragraph. The IEPA agrees that the two identified factors would have an impact on groundwater flow and that these factors complicate evaluation of groundwater flow. Please explain the groundwater flow pattern if the 650' contour line is closed as shown on Figure 3-3.

9. Page 3-3, 2nd paragraph. Figure 3-3, Please indicate why the 652.25' contour line is presented as inferred.

10. Figure 3-6, The extent of the mound in the vicinity of MW-2312S may be overestimated. Based on the groundwater elevations in well pair MW-2312S and MW-2312M, it appears that aquifer recharge due to leakage from the sewer could be the vertical inflow in a very localized area. If it is important to Lockformer to demonstrate that this mound is an impediment to groundwater flow, it would be important to better understand the extent of the mound based on empirical data.

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11. Page 3-4, It appears that a regional gradient is more relevant for groundwater flow in the Silurian dolomite than a local gradient. The gradient for the Silurian dolomite used in the groundwater flow evaluation should be based on Figures 3.1 and 3.2, presented in report titled *Additional Area 1 and 2 Investigations and Remedial Objectives Report, (March 5, 2004).*

12. Page 3-5, Vertical gradients should be averaged only using data from wells MW-2300S/D and MW-2301S/D since the magnitude of leakage at these locations is different than at MW-2312S/M. It appears that vertical gradients based on groundwater elevation data collected on February 5, 2004, in MW-2301S/D are very different than at any other time. As such, it may be inappropriate to include these data in averaging.

13. Page 3-7, For completeness of data, please include in this report analytical data obtained from bedrock wells RW1 through RW12 located south of Area 3.

14. The following arguments do not support the conclusion that DGSD sewer contributed TCE contamination to the residential area south of Lockformer: 1) no TCE was detected in any of soil samples collected underneath the DGSD sewer, and 2) TCE groundwater concentrations underneath the sewer are lower than groundwater concentrations at the southern boundary of the Lockformer facility.

15. The IEPA does not agree with the statement that a TCE source concentration of 500 mg/l is needed to explain a 2-mile long plume. Evaluation of the Domenico equation shows that it is reasonable to expect a much longer plume in the bedrock aquifer than in the glacial sediment aquifer assuming the same hydraulic conductivity and hydraulic gradient. Due to the low effective porosity of bedrock aquifers, groundwater velocity in the bedrock is much higher than in the glacial sediments. Based on a significant difference in effective porosity, it is not unreasonable to assume an order of magnitude higher groundwater velocity in the bedrock than in the glacial sediments. The phenomenon of hydrodynamic dispersion accounts for contaminant dilution due to tortuous groundwater flow through the porous media. Assuming a same scale of observation for the bedrock and glacial sediments, much more significant lateral and vertical dispersion would occur in the glacial sediments due to more tortuous groundwater flow. Figure 3-13 shows that the lateral extent of the TCE plume in residential wells approximately coincides with the width of TCE-impacted groundwater south of Lockformer (MW-2131S and CSB2104). This may be indicative of limited lateral dispersion in the bedrock aquifer. On the other hand, longitudinal dispersion is proportional to groundwater velocity (Bear, 1972). This higher longitudinal dispersion would result in a plume reaching a receptor sooner than predicted by the groundwater velocity alone. In addition, no data has been provided so far to demonstrate TCE degradation in the bedrock aquifer south of Lockformer. All of these factors indicate that the plume length may be significantly longer in the bedrock aquifer than it would be expected in the glacial sediments. The analytical data collected from wells RW1 through RW12 would be useful to determine whether the TCE distribution in groundwater is reasonable.

16. Figure 3-13, What is the source of groundwater contamination detected in MW1915?

If you have any questions or comments, please feel free to contact me at 217-782-5504.

Sincerely,

Stanley F. Komperda
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